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<110> GILBERT, MARYSE
POPOFF, MICHEL-ROBERT

<120> CLOSTRIDIUM TOXIN, AND PROCESS FOR THE PREPARATION OF IMMUNOGENIC
COMPOSITIONS

<130> 0660-0172-0CONT

<140> 09/531,38

<141> 2000-03-20

<150> PCT/FR98/01999

<151> 1998-09-17

<150> FR971170

<151> 1997-09-19

<160> 7

<170> PatentIn version 3.1

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<212> DNA

<213> Clostridium perfringens

<220>

<221> CDS

<222> (268)..(1065)

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aaagtgttct cgggggacac ttttttgttt taaaaaggaa aatataaata aaatttagat 180
aaaagtgtaa aataattatt tttatttttaa atttgttaaa aatttgatat aattgaattg 240
taaaaaaaat ttcagggggg aatataa atg aaa aaa att att tca aag ttt act 294
Met Lys Lys Ile Ile Ser Lys Phe Thr
1 5
gta att ttt atg ttt tca tgt ttt ctt att gtt gga gca ata agt cca 342
Val Ile Phe Met Phe Ser Cys Phe Leu Ile Val Gly Ala Ile Ser Pro
10 15 20 25
atg aaa gca agt gca aaa gaa atc gac gct tat aga aag gta atg gag 390
Met Lys Ala Ser Ala Lys Glu Ile Asp Ala Tyr Arg Lys Val Met Glu
30 35 40
aat tat ctt aat gct tta aaa aac tac gat att aat aca gtt gta aac 438
Asn Tyr Leu Asn Ala Leu Lys Asn Tyr Asp Ile Asn Thr Val Val Asn
45 50 55

att tca gaa gat gaa aga gta aat aat gtt gaa cag tat aga gaa atg 486
Ile Ser Glu Asp Glu Arg Val Asn Asn Val Glu Gln Tyr Arg Glu Met
60 65 70

tta gaa gat ttt aaa tat gat cct aac caa caa ctg aaa tct ttt gaa 534
Leu Glu Asp Phe Lys Tyr Asp Pro Asn Gln Gln Leu Lys Ser Phe Glu
75 80 85

ata ctt aat tca caa aag agc gat aat aaa gaa ata ttt aat gta aaa 582
Ile Leu Asn Ser Gln Lys Ser Asp Asn Lys Glu Ile Phe Asn Val Lys
90 95 100 105

act gaa ttt tta aat ggt gca att tat gat atg gaa ttt act gta tca 630
Thr Glu Phe Leu Asn Gly Ala Ile Tyr Asp Met Glu Phe Thr Val Ser
110 115 120

tct aaa gat gga aaa tta ata gta tct gat atg gaa aga aca aaa gtt 678
Ser Lys Asp Gly Lys Leu Ile Val Ser Asp Met Glu Arg Thr Lys Val
125 130 135

gag aat gaa gga aaa tat att tta aca cca tca ttt aga act caa gtt 726
Glu Asn Glu Gly Lys Tyr Ile Leu Thr Pro Ser Phe Arg Thr Gln Val
140 145 150

CH
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Cys Thr Trp Asp Asp Glu Leu Ala Gln Ala Ile Gly Gly Val Tyr Pro
155 160 165

caa aca tat tct gat aga ttt aca tat tat gca gat aat ata tta tta 822
Gln Thr Tyr Ser Asp Arg Phe Thr Tyr Tyr Ala Asp Asn Ile Leu Leu
170 175 180 185

aac ttc aga caa tat gca act tca ggt tca aga gat tta aaa gta gaa 870
Asn Phe Arg Gln Tyr Ala Thr Ser Gly Ser Arg Asp Leu Lys Val Glu
190 195 200

tat agt gtt gta gat cat tgg atg tgg aaa gat gat gtt aaa gct tct 918
Tyr Ser Val Val Asp His Trp Met Trp Lys Asp Asp Val Lys Ala Ser
205 210 215

caa atg gta tat ggt caa aat cct gat tct gct aga caa ata aga tta 966
Gln Met Val Tyr Gly Gln Asn Pro Asp Ser Ala Arg Gln Ile Arg Leu
220 225 230

tat ata gaa aaa gga caa tct ttc tat aaa tat aga ata aga att aaa 1014
Tyr Ile Glu Lys Gly Gln Ser Phe Tyr Lys Tyr Arg Ile Arg Ile Lys
235 240 245

aac ttt aca cct gca tca att aga gta ttt ggt gaa ggg tat tgt gca 1062
Asn Phe Thr Pro Ala Ser Ile Arg Val Phe Gly Glu Gly Tyr Cys Ala
250 255 260 265

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Ile Asp Ala Tyr Arg Lys Val Met Glu Asn Tyr Leu Asn Ala Leu Lys
35 40 45

Asn Tyr Asp Ile Asn Thr Val Val Asn Ile Ser Glu Asp Glu Arg Val
50 55 60

Asn Asn Val Glu Gln Tyr Arg Glu Met Leu Glu Asp Phe Lys Tyr Asp
65 70 75 80

Pro Asn Gln Gln Leu Lys Ser Phe Glu Ile Leu Asn Ser Gln Lys Ser
85 90 95

Asp Asn Lys Glu Ile Phe Asn Val Lys Thr Glu Phe Leu Asn Gly Ala
100 105 110

Ile Tyr Asp Met Glu Phe Thr Val Ser Ser Lys Asp Gly Lys Leu Ile
115 120 125

Val Ser Asp Met Glu Arg Thr Lys Val Glu Asn Glu Gly Lys Tyr Ile
130 135 140

Leu Thr Pro Ser Phe Arg Thr Gln Val Cys Thr Trp Asp Asp Glu Leu
145 150 155 160

Ala Gln Ala Ile Gly Gly Val Tyr Pro Gln Thr Tyr Ser Asp Arg Phe

165

170

175

Thr Tyr Tyr Ala Asp Asn Ile Leu Leu Asn Phe Arg Gln Tyr Ala Thr
 180 185 190

Ser Gly Ser Arg Asp Leu Lys Val Glu Tyr Ser Val Val Asp His Trp
 195 200 205

Met Trp Lys Asp Asp Val Lys Ala Ser Gln Met Val Tyr Gly Gln Asn
 210 215 220

Pro Asp Ser Ala Arg Gln Ile Arg Leu Tyr Ile Glu Lys Gly Gln Ser
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 aaagtgttct cgggggacac ttttttgttt taaaaaggaa aatataaata aaatttagat 180
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<220>
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Phe Leu Ile Val Gly Ala Ile Ser Pro Met Lys Ala Ser Ala				
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 <213> Clostridium perfringens

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Phe Leu Ile Val Gly Ala Ile Ser Pro Met Lys Ala Ser Ala
20 25 30

<210> 6
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic DNA

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 <212> DNA
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<220>
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<400> 7
 tcaagtttgt acatgggatg atg 23